In the Specification

Please amend the following three sections of the specification as identified below:

Page 4, line 15 - page 5, line 12:

The convergence system may have a color misconvergence drift due to environmental effects which is less than 10 micrometers, preferably less than 5 micrometers, more preferably less than 1 micrometer. The environmental influences are at least one of temperature, temperature gradient, humidity, stress and strain. The intermediate parts of the convergence system may have a linear thermal expansion coefficient which deviates less than 3.10^{-6}/K, preferably less than 2.10^{-6}/K, most preferably 1.10^{-6}/K of at least one of the average linear thermal expansion coefficient of the light splitting and/or light recombining means or the average linear thermal expansion coefficient of the light modulating means. The intermediate parts of the convergence system may have a specific thermal conductivity which differs less than 100%, preferably less than 50%, more preferably less than 25% of at least one of the specific thermal conductivity of the light splitting and/or light recombining means. recombining means or the specific thermal conductivity of the light modulating means. The intermediate parts furthermore may have a high coefficient of elasticity. The high coefficient of elasticity may correspond to a Young's modulus of at least 50 GPa, preferably at least 140GPpa, more preferably at least 300GPpa. The intermediate parts may at least partly be constructed of ceramics. The intermediate parts may be for at least 50%, preferably for at least 80%, most preferably for at least 100% constructed of ceramics. The ceramics may be alumina Al_2O_3. In the convergence system, the intermediate parts furthermore may comprise straight, stiff bridges to connect the light splitting and/or light recombining means with the spatial light modulating means. Each of the intermediate parts may be

adjusted for sideways receipt of analyzer means. The convergence system may have six degrees of freedom for converging the different parts of the convergence system. The convergence system may furthermore comprise connecting means to connect the intermediate parts with the light splitting and/or light recombining means and to connect the intermediate parts with the spatial light modulating means. The light splitting and/or light recombining means may be a dichroic prism, like e.g. an X-cube.

Page 9, line 2 - page 14, line 19:

Similarly, it is to be noticed that the term "coupled", also used in the claims, should not be interpreted as being restricted to direct connections only. Thus, the scope of the expression "a device A coupled to a device B" should not be limited to devices or systems wherein an output of device A is directly connected to an input of device B. It means that there exists a path between an output of A and an input of B which may be a path including other devices or means. Fig. 1 shows a convergence system according to a first embodiment of the present invention. The convergence system 100 comprises an X-cube 102, three (or more) single intermediate parts ~~104~~104a, 104b, 104c for three (or more) different colors or color ranges and light modulating means ~~106~~106a, 106b, 106c for each of these three (or more) different colors. The X-cube 102 is a dichroic prism which allows recombination of three outgoing beams having a different color or color range into one beam. Some prisms however act as splitting and recombining mirrors at the same time, e.g. for reflective DMD's or reflective LCD's, such as LCOS-technology. In the splitting area of white light into its main color components, no image is created yet, convergence of images thus generally happens in the color recombining area. Typically, these colors correspond with the primary colours, i.e. green, red and blue. In the following, as an example color splitting and/or recombination will be

described for three color subbeams which are green, red and blue, although the invention is not limited thereto. The X-cube 102 typically is made of glass preferably with optical quality, and comprises several dichroic coatings, which allow the recombination of three beams into an outgoing beam. BK7, which can be obtained from Schott Glas, is one of the most available optical glass types and therefore widely known, but other optical materials, produced by other companies such as Ohara and Corning, also are produced, each with their own specifications such as e.g. their own refractive index. X-cubes made of another basic material are seldom but also could be used for the present invention. Complete X-cubes, i.e. the basic materials shaped to prisms, the applied coatings and the glue to connect the different parts made in the basic materials, are well known by a person skilled in the art and are available from e.g. Nitto Optical Co., Ltd. or Enplas Optics Corporation or Unaxis Balzers Ltd. Division Optics. Besides splitting of a single light beam, the X-cube in the present invention can also be used for recombining three different color beams to one single beam. Furthermore, the X-cube in the present invention also can be used for both light splitting and light recombination. The three intermediate parts, i.e. an intermediate part for color green 104a, an intermediate part for color red 104b and an intermediate part for colour blue 104c, are suited for receiving e.g. filters, analyzers or polarizers. Alternatively the present invention includes these intermediate parts being split in a different way and consisting of three separate pins or pillars. For each color, a spatial light modulating means ~~106~~106a, 106b, 106c is provided which can be any suitable device which comprises an array of individually addressable and individually drivable light modulating pixels, which can be driven to represent an arbitrary image. The spatial light modulating can be e.g. a digital mirror device (dmd), a liquid crystal on silicon (LCOS) device, a liquid crystal display (lcd), but is not limited thereto. The light modulating means ~~106~~106a, 106b, 106c can be either reflective or transmissive. The system has the strongest advantage for

projectors using light modulating means with high resolution.

Accordingly, there is a spatial light modulating means for the green light 106a, a spatial light modulating means for the red light 106b and a spatial light modulating means for the blue light 106c.

It is a specific advantage of the present invention that the intermediate parts ~~104~~104a, 104b, 104c are made of a specific material or materials. This material or these materials has/have a linear coefficient of thermal expansion or a combined average linear coefficient of thermal expansion which is the same or as close as possible to the linear coefficient of thermal expansion of the optical glass used for the X-cube 102 or to the linear coefficient of thermal expansion of the light modulating means ~~106~~106a, 106b, 106c or to an average linear coefficient of thermal expansion of these means. The basic material typically is glass having a good transparency for light with wavelengths in the visible spectrum. The type of glass chosen for production of the light modulating means ~~106~~106a, 106b, 106c can vary and depends on the quality of the light modulating means ~~106~~106a, 106b, 106c used. Optical grade glass, BK7 as well as simple float glass without special characteristics can be used. The invention furthermore is not limited to light modulating means having glass as basic material. Other optical transparent materials such as sapphire or certain liquids also are within the scope of the present invention. By selecting intermediate parts ~~104~~104a, 104b, 104c having an average linear coefficient of thermal expansion which is equal or close to the average linear coefficient of thermal expansion of the light modulating means ~~106~~106a, 106b, 106c, tension and/or movement between the different components is avoided. The linear coefficient of thermal expansion should deviate not more than 3.10^{-6}/K, preferably not more than 2.10^{-6}/K, more preferably not more than 1.10^{-6}/K from the linear coefficient of thermal expansion of all the other components that form the complete chain between each light modulating means and the used prism for recombining the at least 2 superposed images. This should preferably

apply over the range –30°C to +80°C, i.e. temperatures that are normal inside a projecting apparatus. These values should also be obtained for different humidity conditions, i.e. between 0% and 100% relative humidity. Furthermore, this material needs to have a similar specific heat capacity as the X-cube and the glass components of the light modulating means ~~106~~106a, 106b, 106c, so that they have a similar behaviour even in gradient situations, i.e. also in non stable circumstances. The specific heat capacity should not deviate more than 200 J/(kg.K), preferably not more than 100 J/(kg.K), more preferably not more than 50 J/(kg.K). Preferably, the stiffness of the materials should also be larger than the stiffness of the materials currently used in conventional systems, i.e. better than the stiffness of metals or plastics, which might be filled. This can be expressed by its modulus of elasticity. This modulus of elasticity should be bigger than 100GPa, preferably bigger than 200GP~~p~~a. Furthermore, the materials also should not suffer significantly from hysteresis or plastic deformation when stressed and behave fully elastic, i.e. come back to their original position when original environmental parameters are obtained. The latter elasticity should be obtained for deformation at temperatures that are between –30°C and +80°C, i.e. temperatures that are normal inside a projecting apparatus. This elasticity should also be obtained for different humidity conditions, i.e. between 0% and 100% relative humidity. The most important environmental effects thus are variations in temperature and variations in humidity. These can cause mechanical stress in the materials. Examples of the materials which are suitable as construction material for intermediate parts are ceramics, e.g. Al_2O_3, as these have no plastic deformation when stressed, only a small amount of elastic deformation. Al_2O_3 also has the advantage that it can be shaped to functional parts with a limited amount of production time and costs. Other examples of ceramic materials that can be used are Zirconia, silicon nitride, boron carbide or silicon carbide. Alternative materials with similar linear expansion are e.g. glass as mentioned in Table 1, but also

FeNi alloys and thermosetting material such as Bulk Molding Compound (BMC). The linear thermal expansion coefficient, the thermal conductivity and the Young modulus of some of these materials is shown in Table 1. The young modulus of BMC is not constant, but comparable to that of plastics such as Polyphenylene Sulphide.

Material	Linear expansion coefficient [/K]	Thermal conductivity [W/m.K]	Young modulus [GPa]
Aluminum	$2{,}4.10^{-5}$	220	70
Steel	$1{,}2.10^{-5}$	46	210
FeNi alloys	$< 20.10^{-6}$	17	140
Bulk Molding Compound (BMC)	$9.10^{-6} < .. < 22.10^{-6}$	1	Variable
Alumina	$6{,}2.10^{-6}$	7	360
Optical glass	$5.10^{-6} < .. < 8.10^{-6}$	1	58,8

Table 1

In the above description reference has been made to a single material. Where mixtures of materials are used then the relevant values should be related to the combined effect of all the materials together, i.e. should relate to average values of thermal expansion coefficient, elasticity, etc.

Each of the intermediate parts ~~104~~104a, 104b, 104c is fixed the x-cube 102 on one side and to the light valve means ~~106~~106a, 106b, 106c of the corresponding color on the other side, e.g. by glueing. In the present invention, the glueing is performed with the least possible amount of play between glue 108 and parts, which is preferably below 0,4mm, more preferably below 0,3mm, most preferably below 0,2mm. Glue 108 is used at different places with parameters, matching close with the parameters of all construction parts they connect. Examples of glues 108 that can be used are glues based on acrylate or epoxy that can quickly be cured with UV light or heat, or cements cured by heat. Ceramics and glass

alternatively could be bonded together with solder and/or molten glass or other known principles. An alternative view on the convergence system is shown in Fig. 2.

In a second embodiment, a convergence system similar to that of the first embodiment of the present invention is used having three intermediate parts ~~104~~104a, 104b, 104c, which have, however, not only a straight but also a stiff construction. The intermediate parts ~~104~~104a, 104b, 104c, are preferably made of a single part, or at least of the least possible numbers of parts. Therefore, the intermediate part is not only made of a stiff material, as discussed in the first embodiment, but also has a stiff construction. Straight, stiff bridges 200, as indicated in Fig. 3 and Fig. 4, are provided between the X-cube 102 and the spatial light modulating means ~~106~~106a, 106b, 106c. Fig. 3 and Fig. 4 show a left elevated view and right elevated view of part of the intermediate part ~~104~~104a, 104b, 104c. This stiff construction furthermore still allows guarding the possibility to adjust according to six degrees of freedom. These six degrees of freedom are not obtained by providing additional parts, but are provided inherently in the intermediate parts ~~104~~104a, 104b, 104c. Three degrees of freedom, namely the rotations around the horizontal axis, i.e. the X-axis, and the vertical axis, i.e. the Y-axis, of a light modulating means ~~106~~106a, 106b, 106c, together with the translation in the direction of the optical axis, i.e. the Z-axis, can be used to obtain a crisp image on the screen by providing a small amount of play between the three pins 200 and the three corresponding holes in the light modulating means ~~106~~106a, 106b, 106c. The rotational movements can be used for controlling the sharpness and at the same time the magnification of the image, while the translational movement can be used for controlling the sharpness of the image. The three other degrees of freedom, namely the movements in the plane of the image, which consist of the vertical and the horizontal translation, together with the rotation in this plane, can be moved to obtain an image, well positioned vertically,

horizontally and in rotation on the screen by sliding the intermediate play ~~104~~104a, 104b, 104c against the dichroic prism, i.e. in this case the X-cube 102. By sliding, the play is also minimised. After positioning, all six degrees of freedom can be fixed with methods as formely described. This procedure can be repeated for each of the light modulating devices. From Fig. 3 and Fig. 4 it can be seen that the stiff bridges 200 will block an analyzer means in vertical direction. This means that using the conventional convergence systems, the analyzer means 202 could not be removed vertically anymore after construction of the convergence system, without removing the stiff bridges 200, i.e. breaking the connection between the light modulating means ~~106~~106a, 106b, 106c and the X-cube 102. The present embodiment solves this problem by providing a way of removing the analyzer sideways. The analyzer means 202 and part of the intermediate parts is illustrated in Fig. 5 and Fig. 6, showing an elevated front and an elevated back view of the intermediate parts. The analyzer means 202, typically is a set of substrates 204, which can consist of 1, 2, 3 or more substrates 204. The analyzer means 202 and the different substrates 204 are fixed without play. This fixation may be performed by glueing. More preferably, the fixing means are such that the analyzer means 202 may be removably fixed. Such a fixing means may for example be a clamp 206 or a closing means based on a spring. The sideways fixation thus allows removal of the analyzer if it reaches the end of its lifetime and provides the possibility for servicing both the analyzer means 202 and the convergence system 100.

Page 15, lines 3 - 28:

A second embodiment of obtaining symmetrical behaviour on the screen is by mirroring parts that are not symmetrical for a specific color. For example, in the system shown in Fig. 7, the asymmetric part or all parts of the intermediate part that is positioned opposite to the entrance

and/or exit side for the white beam, will be mirrored against the asymmetric part of the intermediate parts adjacent the entrance and exit side for the white beam. This is because a color light beam that is modulated by the intermediate part opposite to the entrance and/or exit side for the white beam is not reflected and thus not mirrored anymore by the X-cube dichroic mirror, while the color light beams modulated by intermediate parts adjacent to the entrance and/or exit side for the white beam are reflected and thus mirrored in the x-cube dichroic mirror, thereby providing a mirrored image on the screen. If thus an asymmetric shift occurs in the light modulating means due to environmental effects on asymmetric parts for the intermediate parts, the asymmetric shift will occur in the same direction for all colors on the screen, as the mirroring in the X-cube is compensated by mirroring the asymmetric parts in the intermediate parts ~~104~~104a, 104b, 104c of the convergence system. For example, applied to the convergence system shown in Fig. 1, the green intermediate part 104a is mirrored against the red intermediate part 104b and blue intermediate part 104c to make that shift, if there already is any shift left, due to asymmetry of the intermediate part ~~104~~104a, 104b, 104c happens in the same direction on the screen for all three colors, hence without misconvergence. Fig. 7 shows a top view of the convergence system whereby mirrored asymmetrical parts are shown so that any drift caused by this, is mainly going in the same direction on the screen for all three main colors, hence have no relative convergence drift between the different colors.